The JOURNAL *of* GEOGRAPHY

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VOLUME XL MAY, 1941 NUMBER 5

GEOGRAPHY IN INTER-AMERICAN COOPERATION

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Mutual understanding among nations is the foundation of democratic cooperation. In this respect the Americas, particularly during the past few years, have made considerable progress. For now we know that there are twenty-one American nations, that each has its own ideals and purposes, and that all began as colonies from the old world. We also know that each American nation won its independence in the Greater American Revolution, not in seven years, but over a period of half a century, 1776-1826. We know too, to-day, that the Americas have a racial heritage that is much more common to all Americans that we in the United States have appreciated. We have failed hitherto to recognize that more than one-third of our western lands were colonized and freed by Spanish settlers. Now we are not only cognizant of these historical facts, but we have acquired a better understanding of the geography of the Americas. We know that Latin America is not a geographical unit, but rather that it is composed of twenty nations with striking contrasts in culture, climate, lands, soils, and other resources.*

Until the present time each separate American state has pursued its own destiny. For each nation, like you or me, living and working in different lands, has its own objectives and its own problems. Contrasting forms or personalities have developed not only because of heritage and environment but also because of exotic or extravironmental factors. Our lives are affected by the activities of others, and isolation is impossible in progressive society. We live in a world of interdependence, whether we like it or not.

PHYSICAL TIES

Adequate tranportation by air, water, and land has moved us all closer together. In a period of ten years the Pan-American and

* Read Dr. Herbert E. Bolton's address, "Cultural Cooperation with Latin America," given before the general assembly of Conference on Inter-American Relations in the Field of Education, Washington, D.C., November, 1939. Copies may be obtained from the Division of Cultural Relations, Department of State.

its associated airlines have connected the United States with every Latin American nation. In actual flying time only three days separate New York from Rio de Janeiro and three and one-half days from Buenos Aires. German airlines and Latin American owned and operated lines also are in service. Our shipping facilities have improved and in all probability will be greatly increased in the near future. Altho the much discussed Pan-American Highway project has lagged far behind earlier expectations, interrupted links have been constructed, and we hope for its eventual completion.

INTER-AMERICAN CONFERENCES

Now a new order confronts the world, even to the extent of threatening the peace and security of free nations. In our western hemisphere political, social, and economic problems of utmost gravity that call for a united American front have arisen. As early as 1936 some of the existing difficulties were foreseen because, in that year at the Inter-American Conference for the Maintenance of Peace, held in Buenos Aires, the first action was taken to establish a procedure of consultation for the purpose of meeting any emergency that might befall the relations of the Americas and other nations. Two years later at the Eighth International Conference of the American States in Lima, Peru, the procedure of consultation was again emphasized. Then, at the outbreak of the European war the first meeting of the American Ministers of Foreign Affairs was held in Panama from September 23 to October 3, 1939, for the specific purpose of discussing continental defense. After the devastation of Belgium and the Netherlands, and the downfall of France, a second consultation, at the suggestion of the Government of the United States, was called for July 21 in Habana. At this timely conference the American nations declared in complete unity that the occupation or domination by the totalitarian powers of the present European possessions in the western hemisphere will be unacceptable to the American States and will be regarded as a menace to their safety. Also, on this momentous occasion resolutions were adopted pertaining to subversive activities of aliens in the Americas and providing for reciprocal assistance and cooperation in economic affairs among the Americas.

Unlike many conferences that end in banquets, speeches, and resolutions and then are forever forgotten, the Habana Conference was followed by serious effort thruout the Americas to implement the adopted resolutions. In the United States, the President ap-

pointed Mr. Henry A. Rockefeller to the National Defense Advisory Committee as coordinator of commercial and cultural relations between our country and the Latin American nations. His job is essentially to unify and to assimilate the diversified activities in Inter-American affairs carried on by our Federal Government and private agencies. Mr. Rockefeller's efforts, plus countless independent conferences, institutes, and lectures have been the means of a better understanding among the Americas.

COMMERCIAL RELATIONS

The immediate problem of the American nations, particularly of Latin America, is primarily economic, centering on agricultural surpluses. While Europe faces starvation, the Americas are unable to find adequate storage for their excessive foodstuffs! War and blockades have cut the Latin American foreign trade more than one-third of its pre-war volume. This condition is serious, in view of the degree of dependence of the Latin American countries on foreign buyers. Argentina, Bolivia, Uruguay, and Venezuela are the countries most severely affected. In 1938 more than 70 per cent of their shipments were consigned to Europe. Europe was also the market for about 50 per cent of the exports of Brazil, Chile, Costa Rica, Dominican Republic, and Haiti.

Among the Latin American exportable products for which a reduction in the foreign market has occurred are meats, corn, hides and skins, wheat, and corn. A second group affected by the European upheaval, but for which there is an expanding market in the United States, includes antimony, tungsten, tin, nitrate, copper, manganese, lead, and zinc. The third group the one less likely to be affected unless we enter the war, consists of coffee, sugar; bananas, cabinet woods, quebracho, cacao, fibers, nuts, waxes, and vegetable oils. Petroleum, a most needed product in Europe and the East, has not to date been noticeably affected by the blockades. The foodstuffs of the Plata region and the oil of Venezuela, Trinidad, Colombia, and Mexico supply the life line of Great Britain today.

In an effort to meet the existing emergency, the United States has made loans thru the Export-Import bank to Latin American nations. It has financed exchange in an effort to stabilize operations in Argentina, Uruguay, Chile, Venezuela, and Colombia. Other countries are under consideration for similar loans. The bank also has financed the start of a Brazilian steel industry and several other

enterprises of less importance. Loans or credit, however, can for the most part be considered as only temporary relief, and other means of cooperation of a more permanent nature must be found. Several suggestions have been made, including (1) the establishment of an Inter-American commodity trade agreement, or cartel; (2) the diversion of some part of agricultural surpluses to other less fortunate American nations; (3) our importation and the increased production of commodities in Latin America which the United States now imports from non-American countries; and (4) the development of new industries. Some of these proposals have already been put into practice.

The agricultural cartel plan aims at an effective system of cooperation in production and marketing. A quota would be assigned to each country concerned in somewhat the same manner as sugar is marketed in the United States. The Sugar Act directs the Secretary of Agriculture to determine annually the amount of sugar needed to meet the requirements of consumers. Then quotas are determined according to a specific formula established by the Act. For 1941, the distribution is as follows: (approximate percentages), Cuba, 28; Philippines, 15; Puerto Rico, 12; Hawaii, 14; mainland cane sugar, 6; domestic beet sugar, 23; and a small percentage from other areas. A similar system has been proposed for the marketing of coffee in the United States. In general, the plan in its entirety, embodies the law of comparative advantages, namely, that agricultural products be grown in those regions in which they can be best produced to meet the market specifications. This plan should be of vital interest to students of geography.

In a mood of wishful thinking one may add that if our early investors in Latin America had placed greater emphasis on noncompetitive enterprises we would be less concerned today with surpluses and deficiencies. The development of the meat packing industry in Argentina, Uruguay, and Brazil, the copper mines in Chile and Peru, the petroleum production in Mexico, Venezuela, and Colombia, and countless other activities, are in direct competition with similar enterprises in the United States.

We have idly witnessed the decline of the Latin American production of rubber, cacao, and cassava for foreign markets, while other regions of the world have increased their production of these commodities for exportation, primarily to the United States. Recently a substantial sum of money was appropriated by the United States Government for the purpose of defraying the expense of a

survey of the possibilities for increased rubber production in Latin America. We are familiar with Mr. Ford's rubber plantations in Brazil, an enterprise that has not been too encouraging. It has been stated that in 1939 Brazil would have received an additional sum of $100,000,000 and that 160,000 more persons would have been employed if the United States had purchased half of its rubber from Brazil. Cacao is another product in which Latin America at one time held the supremacy in foreign markets, and this position may be restored. Brazil, Venezuela, Trinidad, and Ecuador are among the countries capable of materially increasing their production of cacao. The major problems involves the control or eradication of plant diseases affecting the production of cacao and the standardization of the product for foreign shipment. Improper methods of harvesting, packing, and the like are often the cause of an inferior product, one that fails to measure up to the requirements of American importation. In a like manner the production of cassava or manioc could be increased in Latin America and largely replace our imports of manioc from the Netherland East Indies. The demand for manioc is increasing, not only in the form of tapioca but also for use in the preparation of sizing materials and gum such as that used on the United States postage stamps. Among other essential agricultural and tree products which we may obtain in increasing quantities from Latin America are castor beans, the oil of which can be used in paint as a fair substitute for tung-nut oil; carpet wool, which we have been importing, primarily from the Orient; and cinchona bark, the source of quinine and other medicinal substances. Also, we have found in preparing our national defense that we can use larger quantities of South American minerals, including copper, nitrates, and of course manganese and tin.

The trade between the United States and Latin America has increased since the beginning of the European conflict. Our imports from the other Americas amounted to $102,000,000 more in 1940 than in 1939, due primarily to our increased purchase of castor beans, wax, tanning materials, sisal, canned beef, hides and skins, copper, nitrates, and petroleum. In return, the twenty Latin American nations bought $156,000,000 more of American goods for the same period. Our increase in exports included textile fiber, paper, coal, petroleum products, and metals.

Another prospect or improvement lies in the fact that Intra-Latin American trade may be improved and expanded. In 1938 Brazil purchased nearly 48 per cent of Argentina's wheat exports,

and Argentina bought coffee, Paraná pine, cabinet woods, and numerous other commodities from Brazil. Trade also flows between Chile and Peru, and among Chile, Uruguay, Paraguay, and Argentina. Recently a regional conference of the Plata River countries was held in Montevideo, with representatives present from Argentina, Brazil, Uruguay, Paraguay, and Bolivia. These nations, wholly or in part, lie in the Plata drainage basin, an area nearly half the size of the United States. The Plata River system is extensively used to carry exports abroad and to the neighboring nations. Due to customs barriers, freight rates, and currency exchange the trade among the Plata countries has been greatly restricted. If these obstacles were lowered, Bolivian petroleum and Paraguayan lumber, tobacco, and quebracho extract would move in greater amounts to the Plata markets. In return, Uruguay, Brazil, and Argentina could ship grain, meats, textiles, and other products to the landlocked countries. To further this possibility Argentina, Uruguay, and Brazil have agreed to grant trade concessions to Bolivia and Paraguay. Similar forms of cooperation among the Latin Americas can be expected.

As previously stated, industrialization in the Americas is being encouraged and financed by the United States, even tho it may tend to make the raw-materials-producing countries of Latin America more independent of our manufactured goods. However, it may also result in rendering Latin America less susceptible to totalitarian barter trade and less dependent upon European supplies. Among the products that may be manufactured in new plants are steel, glassware, chinaware, wrought iron, linens, and knitted goods.

It must be emphasized that in a period of economic emergency the first step is to give assistance, even tho it may bring only temporary relief, with the hope that more permanent measures will follow and that later the afflicted may direct his own affairs without help—but never without an obligation to cooperation. Such is the will of all free nations. Thus far most of the effort toward an economic cooperation falls in the category of temporary relief.

Our appreciation for the economic problems in the Latin Americas is not new, for it is exemplified in the negotiation of eleven reciprocal trade agreements with Latin American nations, the first signed as early as 1934. But the cultural relations among the Americas until recently have received practically no significant attention. The American nations do not have departments of propaganda, and never have they deliberately attempted to mould the public opinion

of other nations. However, the totalitarian governments, as a part of their foreign policy, have organized agencies of propaganda in the Americas. Also, in the Americas there exists a heritage of misunderstanding not only between the United States and Latin America but also among the Latin American countries themselves.

At present it is probably true that we, in the United States, have a better understanding of the Latin American customs than they have of our American ones. In view of the known totalitarian attempts to confuse the Latin Americans as to the policies of the United States, we should expend every effort to make ourselves known to our neighbors. Much has been done in this direction, largely thru the fine work of Mr. Rockefeller and his committees. Every feasible method of communication is being employed to disseminate accurate and representative information about the United States in Latin America thru new agencies, books, radio, motion pictures, music, and many other forms. Altho the work has not gone very far, nevertheless it is a good beginning.

Emphasis also has been placed on the exchange of students, teachers, and business and professional leaders between the United States and Latin America. We are particularly interested in encouraging Latin Americans to visit the United States. A number of individuals and groups has been invited by our Department of State, including persons interested in journalism, education, history, architecture, engineering, music, and classical studies. In February and March, 1941, more than 100 students, teachers, and professional men and women from Latin America attended a special session of the University of North Carolina. This is the first time that a university in the United States has arranged for a six week session devoted to courses and work of specific interest to persons from other American nations. Also two delegates from each of the Latin American countries have been invited to attend the International Conference, New Educational Fellowship, to be held at Ann Arbor, Michigan, July 2-12.

The Department of State reports "that during the past eight years the number of students in the United States from the other American republics has increased from 15 during the academic year 1933-34 to approximately 1,400 in 1940-1941, and that the most important single agency in this country for the encouragement of student interchange is the Institute of International Education."

Altho the field of geography does not appear very prominent in the attempt to improve cultural relations among the Americas, it

is receiving considerable attention. A number of geographers attended the Conference on Inter-American Relations in the Field of Education held two years ago in Washington, D.C. At the Eighth Scientific Conference of the Americas, geography was well represented. Undoubtedly, American geographers were in attendance at the third General Assembly of the Pan American Institute of Geography and History, held March 30 to April 3, 1941, in Lima, Peru.

APPLICATION OF GEOGRAPHY

If a mutual understanding of nations and individuals is the basis for cooperation, then we may add that geography is the foundation of understanding. No one, with a working appreciation of the scope and objectives of geography will question the importance of the science as a contribution to a better understanding of nations and their related problems. The difficulty seems to be, primarily, one of application. Geography has remained far too exclusively an academic subject. Geography for geography's sake, or studying geography to teach geography, has its merits, but why not go further? Geography, or any other subject or business, is not likely to expand beyond the scope of its service to mankind.

As a science of distribution, the integration of the earth features, the compositiveness of regions, and the inter-relation of regions, geography offers unlimited opportunities of not only a better understanding of nations or individuals but also as a medium of active respect for the democratic way of life. In the present emergency, it becomes the plain duty of the geographer to aid in the creation of better inter-American relations, that the Americas may remain independent thru inter-dependence.

THE GIANT RELIEF MODEL OF THE UNITED STATES

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In 1923 Roger W. Babson conceived the idea of constructing a topographically accurate relief model of the United States. Thru the encouragement and assistance of Newton D. Baker, Secretary of War under President Woodrow Wilson, Mr. Babson organized a National Map Committee composed of educators and industrialists from every state in the Union. This committee was asked to guide the construction program.

Under the leadership of George W. Coleman, first president of Babson Institute, the Coleman Map Building was erected to house the model and construction laboratories. The committee engaged George Carroll Curtis, one of the leading geographic sculptors of the country, to construct the model. A year or two later, upon the death of Mr. Curtis, construction was turned over to E. LeRoy Nichols, an engineer, who remained in charge for nearly thirteen years. During this period came the depression of the early and middle thirties, and work on the model was placed on a part-time basis. By the end of 1937 less than one-tenth of the model had been completed and it was feared that the entire project might have to be abandoned.

In the meantime, Carl D. Smith had been appointed president of Babson Institute. Unwilling to give up the model project, he formed a new National Map Committee and invited me to take full charge of the construction program. On January 1, 1938, a staff of map experts invaded the model laboratories. Modern equipment and new methods of construction were introduced, and the rate of production increased from an average of less than 20 blocks to more than 300 blocks a year! Three years later, on the afternoon of December 31, 1940, the last of 1,216 blocks was placed in position. The Giant Relief Model of the United States was complete!

GLOBE CONSTRUCTION

The only true representation of the earth's surface is accomplished by globe construction, which permits no distortion of land area or coastal configuration. All maps or models which do not use this base are approximations. In order to insure the highest degree of accuracy, the Giant Relief Model was laid out as a segment of a huge globe which, if completed, would have a diameter of approxi-

mately 165 feet. The giant dome-shaped steel framework which supports the model is 65 feet long by 45 feet wide and rests on a separate foundation in the center of the Coleman Map Building.

In order to facilitate construction, the model was made in small blocks measuring one degree of latitude by one degree of longitude. These degree blocks, slightly curved and tapered to the north, fit together along the lines of latitude and longitude.

SELECTION OF SCALES

To permit a generous amount of detail, a horizontal scale of 4 miles to the inch, or 1:250,000, was adopted for the Giant Relief Model. This is one of the standard scales used by the United States Geological Survey and has been found adequate for most map interpretation purposes.

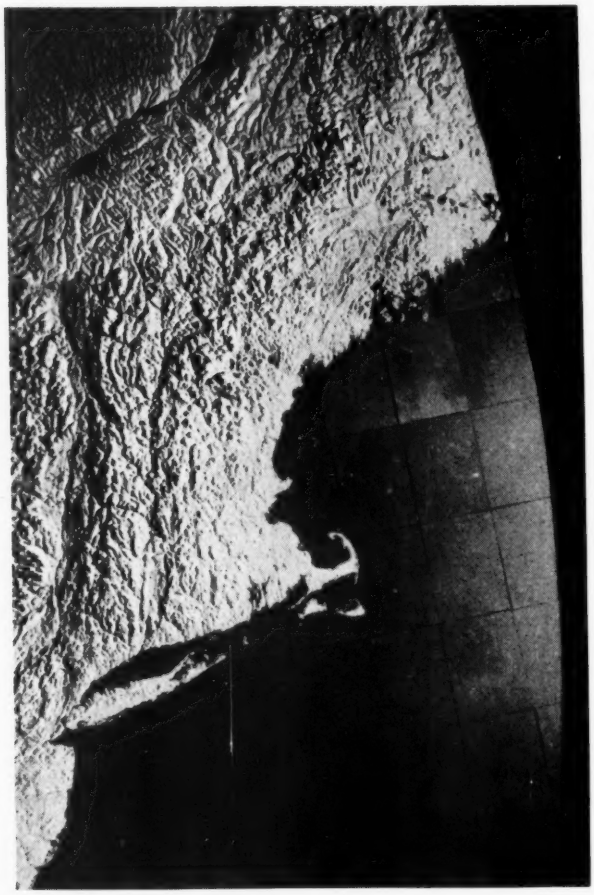

Fig. 1. The New England portion of the Giant Relief Model of the United States.

The vertical scale of the model ranges from 6 to 12 times the horizontal. In areas of low relief, a 12-times exaggeration was used in order to bring out details in the topography, while in areas of high relief a 6-times exaggeration proved desirable because it eliminated unnatural overexaggeration of rugged mountain country. If the horizontal and vertical scales were kept the same, Pikes Peak would rise less than one-quarter of an inch above the surrounding region and the Central Lowland would appear as an almost perfect plain. Since both of these repre-

sentations would be incorrect, a graded vertical scale was adopted, thus making possible a true portrayal of the relief of the country.

ACCURACY OF SOURCE MATERIAL

The gathering and assembling of accurate topographic information for all sections of the country is one of the most difficult and time-consuming operations in relief model construction. The chief sources of data used by the Staff of the National Map Committee include the U. S. Geological Survey, Coast and Geodetic Survey, State Geological Surveys, Bureau of Air Commerce, War Department, Forest Service, Reclamation Service, railroad engineering departments, and miscellaneous reports by geologists, geographers, and other specialists. Airplane photographs were used in several instances where contour maps were entirely lacking. The Giant Relief Model combines more authentic information regarding the topography of this country than any other map or model now in existence.

Fig. 2. San Francisco and the Golden Gate, with the Great Valley and foothills of the Sierras in the background.

CONSTRUCTION PROCESSES

The first process is the preparation of a contour map on the scale of 4 miles to the inch, based upon the source material gathered. This map is made in sections corresponding in size to the one-degree blocks of which the model is composed. The map is then clamped onto a cardboard of specified scale thickness and an operator with a high-speed, all-direction jig saw cuts out those sections indicated by the highest contour on the map. This may result in only two or three tiny holes representing the peaks of the highest mountains. Successive contours are then cut out of additional sheets of cardboard until the lowest contour level is reached.

The cardboards are then stacked and nailed, thus producing an

upside-down, cut-out model of the area, with the mountain peaks at the bottom. Into this skeleton is poured plaster of Paris, which hardens to produce a strange, cubist model in which the contours rise regularly and abruptly in a weird, step-like fashion. It then becomes the duty of the modeler, furnished with complete data on the section, to model the topography with plastolene, introducing detail not shown by the contours and adding to the realism of the model's appearance.

When the modeler finishes his work, the section is matched to adjacent blocks and then molded in plaster. From this mold, or negative, the final cast is produced. This receives several coats of buff paint after which lakes and streams are painted in blue. The completed block is then placed in position on the curved base.

It is essential that each of the above processes be carried out with extreme care or the valuable detail furnished by the cartographer will be lost en route and the finished model will fail to portray an accurate picture of the topography.

USE OF THE MODEL

Full development of the educational and display uses of the Relief Model will require several years of careful planning and experimentation. Those in charge of this phase of the program are looking forward to continued improvement of equipment and facilities in order that the model may become increasingly more valuable to those who view it. One of the first innovations will be controlled lighting. Thru this medium, sunrise and sunset effects can be reproduced, time zones can be demonstrated, and mountain ranges can be made to stand out in vivid relief against a darkened horizon.

In addition to special display uses for the model, there are those which are purely educational. Engineers and technical experts are at work on plans which may make it possible to project various kinds of information onto the surface of the model or onto a reflected image. The location of physiographic features, important economic resources, transportation systems, strategic industries, production centers, and many other types of data can thus be readily visualized thru the aid of the model.

It is anticipated that the model will prove of real value in the National Defense program. Because of its high degree of accuracy, it will be useful in teaching the interpretation of topographic maps so essential to all military men. It will permit a quick and accurate analysis of the relief features and coastal configurations of the nation. In brief, it can be made to serve as a visual aid in various kinds of instructional work.

GUADALAJARA, MEXICO

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Before the summer of 1939, Guadalajara, Mexico's second-ranking city, was accessible only by rail or airplane. Altho the 500 miles of territory between Mexico City and Guadalajara is occupied by several fairly important cities, and much of the land in the numerous inclosed basins is in farms, there was no continuous highway over which automobiles might pass at all seasons of the year, or at any time with safety.

THE GUADALAJARA-MEXICO CITY HIGHWAY

The new highway is a broad, macadam road with gentle grades and banked curves. The route actually begins at the entrance to the Paseo de la Reforma in Mexico City. Passing along this beautiful boulevard as far as Chapultepec Gardens, it turns to the right and becomes a wide, two-lane thorofare thru Chapultepec Heights and on out to the city limits. An elevation of more than 11,000 feet is reached between Mexico City and Toluca, the latter city centered in a plain 8,500 feet above sea level. Beyond Toluca the highway ascends to 10,000 feet where one can see Zitácuaro in the middle of a basin three thousand feet below. West of Zitácuaro the highway again reaches an elevation of 10,000 feet and one is able to see hundreds of mountain peaks. The place provided for those who wish to stop and look is named "The View of a Thousand Peaks."

In the basin two thousand feet below is the city of Morelia with its 42,000 inhabitants. Beyond Morelia the highway crosses three more ranges at elevations between eight and nine thousand feet. Between the ranges are the basins, each one occupied by a city. Just beyond the city of Quiroga in the first basin, one looks out across the top of a pyramid and on across Lake Pátzcuaro to the picturesque city of Pátzcuaro. Zacapu, the center of the lacquer-ware industry is in the next basin. Zamora and Jiquilpan occupy the two succeeding basins after which the route crosses the last notable mountain range and descends to an elevation between five and six thousand feet. This elevation is maintained during the remaining ninety miles to Guadalajara. Fifty miles of this distance parallels Lake Chapala, the largest inland water body in Mexico. At places the highway is hundreds of feet above the lake. Sometimes it passes along the shore close to the water. Lake Chapala, about 100 miles

long and fifteen miles wide, lies between two ranges of mountains which sink into the plain at the western end. One might imagine oneself riding along the Mediterranean coast but for the fact the lake water is yellowish due to the sediment washed in from mountain streams.

THE CITY OF GUADALAJARA

Guadalajara is about thirty-five miles north of the western end of Lake Chapala. The city is situated in a plain dotted with smoothly

Fig. 1. One of the north-south thorofares of Guadalajara.

rounded hills, the mountains always looming up in the distance. The vegetation of the surrounding region, like that of most of the Mexican Plateau, is adapted to dry climate. Forests and grass cling to the higher mountain slopes, or appear only where there is a permanent supply of water.

The city of Guadalajara is laid out in the form of a square with arms extending from each of the four sides. The principal thorofare, Calzada Independencia, extends northeast and southwest, almost bisecting the city. On the western side of this beautiful boulevard the city streets run north-south, and east-west. On the eastern side of the boulevard the streets extend northeast-southwest and northwest-southeast. The highway from Mexico City enters the city from the west, continues down a fine residential street into the central plaza past the cathedral and the government buildings

and on down to Calzada Independencia. The railroad station, where the Southern Pacific Railway meets the National Railways of Mexico, is located in the south central part of the city. Beautiful plazas and parks are scattered thruout the city and the young men and the young women still parade around them in opposite directions certain nights each week.

THE CLIMATE

The 200,000 inhabitants of Guadalajara live in a climate having some features similar to that of Mediterranean lands. The days

Fig. 2. The central plaza, the Cathedral in the foreground, the government palace at the right.

are warm but not excessively so. The nights are cool and pleasant. During the months of June, July and August frequent thundershowers occur in the afternoon just as they do in the United States. The evenings are usually clear. Guadalajara is situated 5,200 feet above sea level. The effect of elevation is seen in the medium-weight clothing worn by the people. The city is high enough to assure prevalence of moderate temperatures while it is far enough south in latitude to prevent abrupt temperature changes.

THE PEOPLE

The people of Guadalajara resemble those found in any city in Spain. They are light in color with medium to tall stature. A typical street scene, as far as the people are concerned, does not present

many aspects different from those found in American cities. There are few automobiles on the streets. Where the streets are narrow the traffic, at times, seems dense but most of it consists of buses, taxicabs, and trucks. On the wide streets the crowding disappears. However, the opening of the Mexico City-Guadalajara highway may be expected to increase the traffic for the distance between the two cities may be covered within twelve hours. Most of the cars that are privately-owned are expensive. Very few of the families constituting the great mass of people can yet afford to buy automobiles of any kind.

Fig. 3. A milk man delivering his product in Guadalajara.

Guadalajara is practically untouched by tourist influence. There are few hotel signs, the prices are ridiculously low for Americans, and the people are even more hospitable than they used to be along the route of the Pan-American Highway. The common labor rate in the city is approximately 1.70 pesos for an eight-hour day, while that for highly skilled labor is four or five pesos. (The peso, at the time this information was gathered, was worth about 20 cents U. S. currency.) One and a quarter pesos per day will support a person in Guadalajara;

2 or 3 pesos will support a working man's family. Office workers receive from 90 to 150 pesos a month. Good hotel accommodations for two persons, including double room with bath, all modern facilities and three meals per day may be obtained for 10 pesos. Street car fares are one cent U. S. currency anywhere in the city, while interurban lines extending to the suburbs charge two cents. The cost of a haircut in a modern barber shop is six cents. The prices asked for merchandise of domestic manufacture are many times

Fig. 4. Bringing wood to market in the outskirts of Guadalajara.

lower than prices quoted for similar goods in Mexican cities that have been accessible to American tourists for longer periods. Newspapers, however, cost approximately five dollars a year.

INDUSTRIES

Guadalajara is a manufacturing city located in an agricultural area. Much of the raw material produced in the area is made into finished products in the city. Hides and skins from the goats, sheep, and cattle that graze the plains and mountain sides are manu-

factured into leather goods, the most important of which is shoes. Guadalajara's eight or ten large shoe factories and its many small leather working plants manufacture approximately 375,000 pairs of shoes a month. These shoes consist of men's, women's, children's, and tennis shoes and sell for anywhere from one peso for the tennis shoes, to 16 or 18 pesos per pair for the best grades of leather. The average price for all leather shoes is sixty cents. The shoes are

Fig. 5. Carrying the earthenware jugs to market in Guadalajara.

sold all over Mexico and many thousands of pairs are sent to the United States.

The second-ranking industry is hosiery. There are eight or ten large factories and about 42 small ones. These factories have a daily output of 44,880 pairs of fine and common socks and stockings. The usual daily production consists of 17,960 pairs of fine full-fashioned silk stockings, 4,000 pairs of fine socks, 21,380 pairs of common stockings and 1,540 pairs of common socks. Most of these products are sold in Mexico.

The daily production of pottery in Guadalajara and its suburbs is 20,000 pieces valued at 8,000 pesos. Twenty-five per cent of the pottery is sold in Mexico while 75 per cent of it is shipped to southern United States between Florida and Los Angeles.

The area about Guadalajara produces about 27,000 tons of wheat annually, part of which goes to local flour mills which have an annual output of 350,000 one-hundred pound bags of flour. The state of Jalisco, of which Guadalajara is the capital, produces annually about 140,000 tons of corn and 250,000 tons of beans, together with flaxseed, barley, fruits and vegetables. Oil pressing plants produce annually eight to ten thousand cargas of linseed oil (a carga is 330 pounds), and ten to fifteen thousand tons of other vegetable

Fig. 6. Hauling corn to market.

oils. Three cotton mills, employing thousands of workers, manufacture cloth from cotton raised around Torreon. Five factories produce 30,000 fifty-pound boxes of soap annually. Other industries include glass, breweries, wineries, eleven large tequilla factories, straw hats, felt hats, rubber articles, sugar, foundries, bakeries, soft drinks, candies and printing shops.

The factories are scattered thruout the city, certain suburban areas being noted for special types of manufacture. Juanacatlan is important for cotton mills while Tlaquepaque is the pottery center. Altho Guadalajara is one of the most important industrial cities of Mexico, its atmosphere is not saturated with smoke, the streets are clean, and the noise of industry is lacking. One must search to find the factories. Their walls are usually blank surfaces adjacent to the sidewalk, the light in the factories coming thru sky-

lights. Wherever possible electric power is used. Industries requiring fuel in their processes are located in the suburban areas.

Guadalajara, with its domed churches, its plazas and parks, its wide boulevards, and its people, could easily be mistaken for a portion of Madrid or Barcelona. Its streets are scenes of activity and noise but the bustle and hurry is chiefly with the motor vehicles. The Latin seems to be a noisy, boisterous individual when he gets one hand on a steering wheel and the other on the horn button of a car. Many of the city's business houses are very modern. The chamber of commerce is active and resembles those of the United States. That of Guadalajara is very much interested in the promotion of highways connecting the city with surrounding areas and with the development of transportation to the Pacific. Maps are in evidence everywhere and engineers are working in conjunction with the city and state authorities to promote the building of easy transportation and communication in all directions. A good highway from Guadalajara to the Pacific coast would likely result in the development of an important Pacific port for Mexico and considerable growth of its second-ranking city.

REGIONAL CONTRASTS IN CHINA

(A College Unit)

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INTRODUCTION

Landscape reading is a basic part of the study of geography at every level of learning, and therefore pictures as a substitute for the actual landscape, are invaluable. The following exercise planned for students on the college level indicates the possibilities of motivation by the use of well chosen pictures of high geographic quality.

The pictures are uncaptioned, inasmuch as captions are likely to reduce the amount of thinking done in the study of a picture. They are chosen to show: (1) man at work in the environment illustrated; (2) the results of man's work in his environment; or (3) the natural environment itself. The student by intelligent study of such landscapes gains an understanding of man's adjustment to the natural environment in a particular region. He realizes the significance of both the natural and cultural features with their consequent interrelationships. He is challenged by the new or unfamiliar to raise questions, to make inferences, and to engage in further research to check the validity of his conclusions. Careful checking of findings is always essential.

The plan below may thus serve as a motivation exercise for a purposeful study of the geography of China which is an integral part of the college course on Asia.

MOTIVATION

I. Hang uncaptioned pictures of China at three foot intervals, each one being numbered.

II. Group pictures into views of North and South China as they are hung.

North

1. Men working in fields of kaoliang
2. Wheat growing between grave mounds
3. Landscape showing dispersed houses
4. Close up view of house showing mud walls
5. Flooded area in Hwang Ho valley showing inundation of farms, some few houses elevated on mounds (artificial)
6. Draft animals pulling a wooden cart

South

1. Men planting rice by hand in small paddy fields
2. Man using water buffalo to plow his rice fields
3. Rice fields with clusters of farm houses
4. Close up view of house showing bamboo walls and thatch roof
5. Crowded houseboats on the canals of the Yangtze delta

7. City view in Peiping or Tientsin showing comparatively wide streets with vehicles in them, shops on sides

6. Boats being used as taxis on canals of Canton delta
7. Irrigated terraces, with rice fields in valley
8. Flagstone trail winding thru a grove of bamboo
9. Human burden bearers carrying merchandise over hills
10. City view in Canton showing the narrow crowded streets with a coolie pulling a rickshaw

III. Brief overview by teacher before giving class instructions for use of pictures.

Ever since Marco Polo visited China we have known that there are really two Chinas, each quite different from the other. Marco Polo himself gave different names to each region, Cathay to North China, Manji to South China. Of course each region has certain similarities, but even today if you were to travel by land from Canton to Peiping you would notice great contrasts, both in natural environments and cultural patterns. Travelers have frequently commented on these differences.

As you study these pictures look for any evidences of contrast between these two regions of China.

IV. Number class, one to a picture (or several to a picture if class is large).

V. Give class specific directions for activity as follows:

1. Make a list of numbers 1 to 17 on your paper.
2. As you look at landscape views jot down the characteristics of landscape, or type of work evidenced in each picture, beside the appropriate number. Note any cultural items which you think may be characteristic of the Chinese.
3. Observe closely to see if you can find reasons for the specific kinds of work, of crops, houses etc.
4. Some pictures do not show man at work in his environment. In these views look for (a) the results of man's work; or (b) natural environmental features in the landscape itself.
5. Look over your notes when you return to your seat to ascertain differences in (a) pattern of land utilization and (b) population density. Are there any similarities? Formulate five or six generalizations contrasting North

and South China. Be prepared to justify your inferences by evidence in the landscape views.

6. What questions arise in your mind from this study?
7. If time permits, turn to map of China in Goode's Atlas, page 153 to see if you can *tentatively* determine the location of a boundary between North and South China.

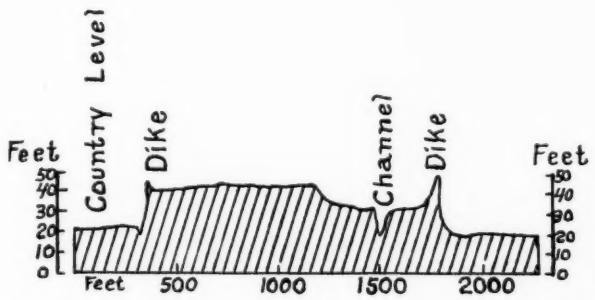


Fig. 1. Cross section of Hwang Ho. Redrawn from Cressey's *China's Geographic Foundations* by permission of McGraw-Hill Book Company, publishers.

1. What is the most striking feature which the diagram reveals about the Hwang Ho?
2. What is the cause of this?
3. Cite two effects it has upon the people living in the North China Plain.

VI. Class discussion would follow such a reconnaissance survey of these two regions of China. Many questions would arise pertinent to the more detailed study of China, such as:

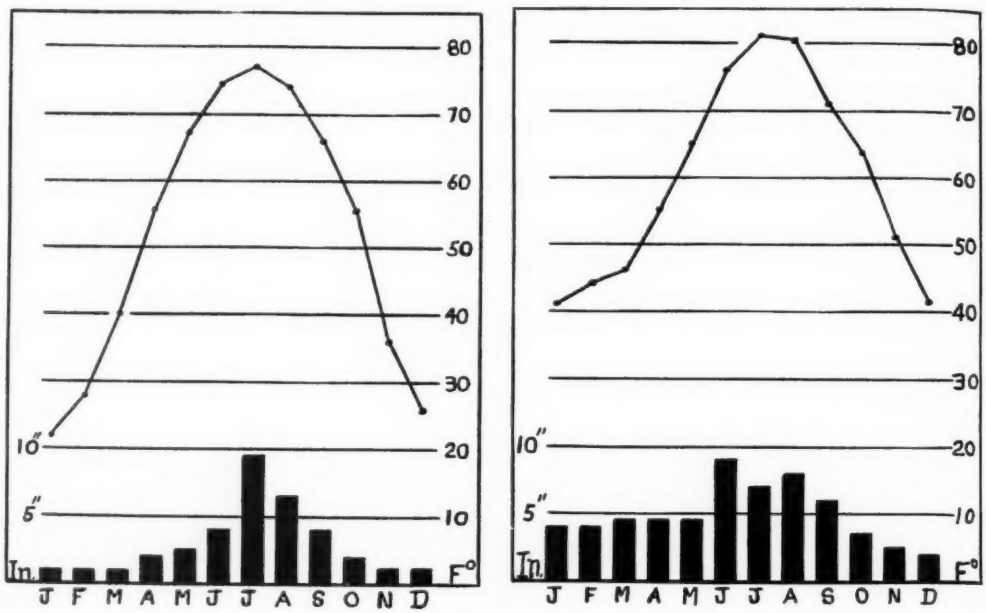
1. Why are no paddy fields of rice seen in the north? no kaoliang in the south?
2. Why does the Hwang Ho flood so frequently?
3. Why is so much more hand labor evident in the south? etc.

All of these questions would lead on to further research and study so that the students' reading, map interpretation, and more intensive picture study would all contribute to an understanding of contrasts between these two regions of China. The unit as a whole would thus be motivated.

TESTING

The following test will indicate phases of the work developed in the periods of assimilation. The era of mere fact testing has passed. The real goal now is a functional one, viz., emphasizing the use of facts. Geography contributes to this end as it stresses thinking in terms of functional understandings. This test is merely sug-

gestive of some possibilities in the whole area of geographical testing, and summarizes the regional contrasts within China.



Figures 2 and 3.

Figures 2 and 3 show average monthly temperature and rainfall conditions in two cities of China. Each is the largest city in the region in which it is located.

1. The city in Fig. 2 is ————. In Fig. 3 it is ————.
2. What climatic type is represented in Fig. 2? in Fig. 3? List briefly your evidence in each case for reaching this conclusion.
3. Why is the temperature gradient so steep in Fig. 3?
4. On the basis of the data in these climatic charts contrast agriculture in the two regions in which these cities are located in respect to:
   (a) Amount and distribution of precipitation.
   (b) Length of the growing season.
   (c) Contrasts in soil due to precipitation.
   (d) Crops raised in each region.

I. Many phrases have particular geographical significance in the study of China. Below are listed several. In each case indicate definitely (a) the meaning of each term; (b) an illustration

of each in either North or South China. Whenever possible make diagrams to clarify your meaning.

1. non-contiguous plots
2. multiple cropping
3. dendritic population pattern
4. dispersed settlement type

II. Mark each of the following statements true or false. Justify your reason for Nos. 1, 2, and 5 in a brief statement.

1. Widespread and acute famines in North China are fundamentally due to physical causes.
2. The agricultural nature of both North and South China precludes the necessity of importing foodstuffs.
3. Soy beans and their associated by-products play a major role in the development of China's most complete railway network.
4. The distribution of population in China shows a remarkable correlation to the distribution of cultivated land.
5. Japanese control of the provinces of Shansi and Shensi insures it adequate coal for its immediate industrial needs.

III. Answer each of the following very briefly:

1. Why is Tientsin, North China's modern commercial and industrial seaport, located forty miles from the sea on the Pei Ho?
2. At what season of the year is travel in the North China Plain rendered difficult because of dust? Why?
3. The Yangtze Plain is relatively free from the menace of floods. Yet in 1931 the most disastrous one ever recorded occurred here. What caused this?
4. China's capital has now been moved to Chungking, the commercial center of Szechwan. From an economic point of view what possibilities, if any, are there for China's self-sufficiency in this region?

IV. Select two routes between Canton and Peiping in which you could make traverses which would give you outstanding features. In each case briefly indicate the natural or cultural features which determined your choice.

THE PENNSYLVANIA TURNPIKE—A NEW WAY ACROSS THE APPALACHIAN BARRIER

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INTRODUCTION

One of the most fascinating aspects of human geography is the study of the cultural variation and development within a culture of the differing modes of land use in particular regions.

Since pre-Columbian times man in crossing the Appalachian barrier on land and water has always favored those geomorphic forms which offered the greatest natural ease of travel. The Mohawk and St. Lawrence valleys have long been pointed out as examples of easy transportation routes. Only in them were the grades of the ridges reduced to an approaching base level. Along the path in the history of human travel routes across the Appalachian barrier, from pre-White times down thru the varying transportation forms of White occupance, the easy routes have been favored.

The newest relation between White, mechanized culture and the old ridges of the Barrier is brought about in the construction of the Pennsylvania Turnpike. A particular culture at a particular time in its development is making an adjustment in its use of the mountainous terrain of Pennsylvania which is a striking example of the dynamics of human will and mass ingenuity.

THE BARRIER AND EASY ROUTES THRU IT

The Appalachian barrier of eastern North America trends northeasterly from central Alabama thru to Labrador. On the west lie the great fertile lowlands of the Mississippi system and the great plains of Canada. The Atlantic ocean edged by the urban-industrial conglomerations on the rim of the coastal lowlands lies on the east. The old, worn-down ridges are nowhere lofty when compared with the high mountains of the globe, but they are often rugged, and in the early days, when they were universally forested, they formed a considerable barrier to human transport and communication. This system of mountains is extremely diversified in character, ranging from the limey ridges of the Ridge and Valley province to the Green Mountains of Vermont.

Thru this barrier, two natural pathways have been prescribed by nature. The first, and the one first used by the early explorers

for their journeys into the interior in their eternal quest for the passage to China, was the Saint Lawrence river system. Few continents are so blessed as to have such a great waterway extend so far inland to the very heart of its agricultural provinces, and which lies in a general line parallel to the natural flow of its trade—between the agro-industrial West and the commercial-industrial East. It also has the advantage of being part of the shortest route to northwest Europe. However, it lies north of the great areas of population and industry, and is icebound during part of the year.

Several hundred miles south of the gulf at the mouth of this great river system is located New York harbor, from whence one may travel by train, boat, airplane, or motor car up the tidal course of the Hudson river to Albany. Soon after leaving New York City, the stream traverses the trough cut thru the old highlands, the Green mountains are on the east, and on the west are the low-lying ridges of the northern termination of the Appalachian folds. A few miles farther west, and rising abruptly, is the high easterly-facing escarpment of the Catskill mountains—really the northeastern terminus of a plateau lying west of the mountains from Alabama to eastern New York.

Leaving the tidewater at Albany, one may travel westward to Schenectady, rising over a stretch of nearly twenty miles of barren fluvio-glacial sands, from whence there is an open gateway to the west. At Schenectady begins the ninety miles long trough between it and Rome (New York). The route rises from tidewater at Albany to 246 feet at Schenectady and 445 feet at Rome. These two routes are the famous water-level routes across the Appalachian barrier.

THE PENNSYLVANIA TURNPIKE

Still farther south from the Gulf of the St. Lawrence lies Philadelphia on the coastal-plain, eastern rim of the continent. It lies up the Delaware bay and between the junction formed by the Schuylkill and Delaware rivers.

Westward up the Schuylkill, thru industrial Reading, or cross-country to agricultural Lancaster, lies Harrisburg, the capital of Pennsylvania. Almost due west, for a matter of some one hundred and seventy-five miles in flight line, lies Pittsburgh, the mightiest iron and steel giant in America. Between these latter two cities one of the most imposing array of linear ridges forms a great series of barricades to human intercourse.

Since the beginning of the westward march of peoples across the United States, these formidable ridges have imposed natural

barriers on transportation between the Atlantic seaboard and the Middle West. Yet, over the old Lancaster Turnpike, opened 150 years ago, there flowed an unending stream of immigrants on their way from Philadelphia to settle the inland areas of the United States. The old Cumberland road was another well traveled route from the coast.

It is a fact of history that the construction of the Erie Canal in the Mohawk valley in New York State in the beginning of the eighteen hundreds gave that State so much commercial advantage that New York City blossomed as number one city of the Nation,

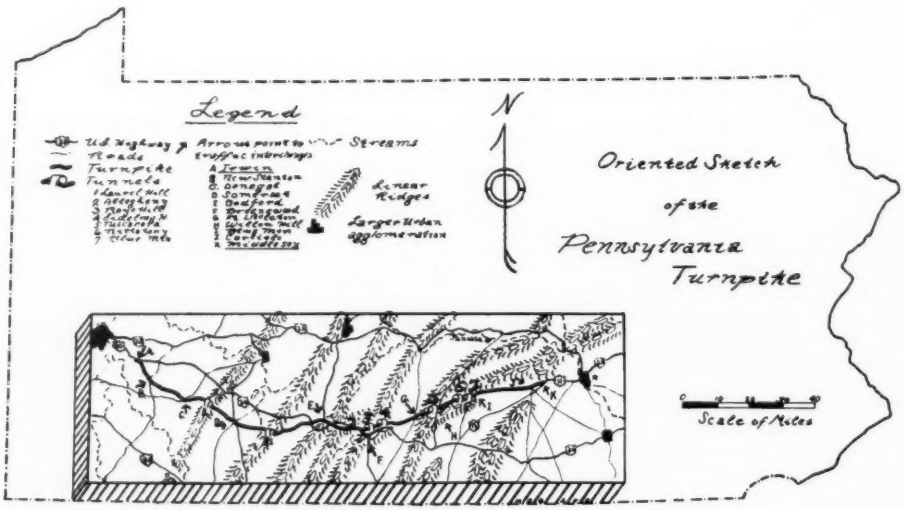

Fig. 1. Sketch map of the Pennsylvania Turnpike.

overshadowing Philadelphia. Since that time, no other route over the mountains has been able to vie with the facilities offered by the Mohawk valley as a water or land way.

But between Pittsburgh and Harrisburg, one of the most significant achievements in modern highway construction has taken place. This superhighway of Pennsylvania gives a route thru the Appalachians with grades less than some of those in the Mohawk valley. It is the only low-grade route thru the Appalachians, and for motor transportation it is the low grades on hills and easy curves which mean less per pound braking effort, cutting down wasted gasoline, and increasing the profit on each haul while reducing running time. Besides being the only low-grade route thru the mountains, it has the advantage of being an all-weather, four-lane, divided highway. It also represents the shortest distance

for most points in the West to points in or around New York City.

Early History of the Route. Even before railroads were invented, the advantage of a more direct route south of the Mohawk between the East and West was recognized. At that time the Ohio river was the West. As early as 1755 Col. James Burd, a Pennsylvania frontiersman, was instructed to cut a wagon road from Shippensburg (west by southwest from Harrisburg) to the area of the present

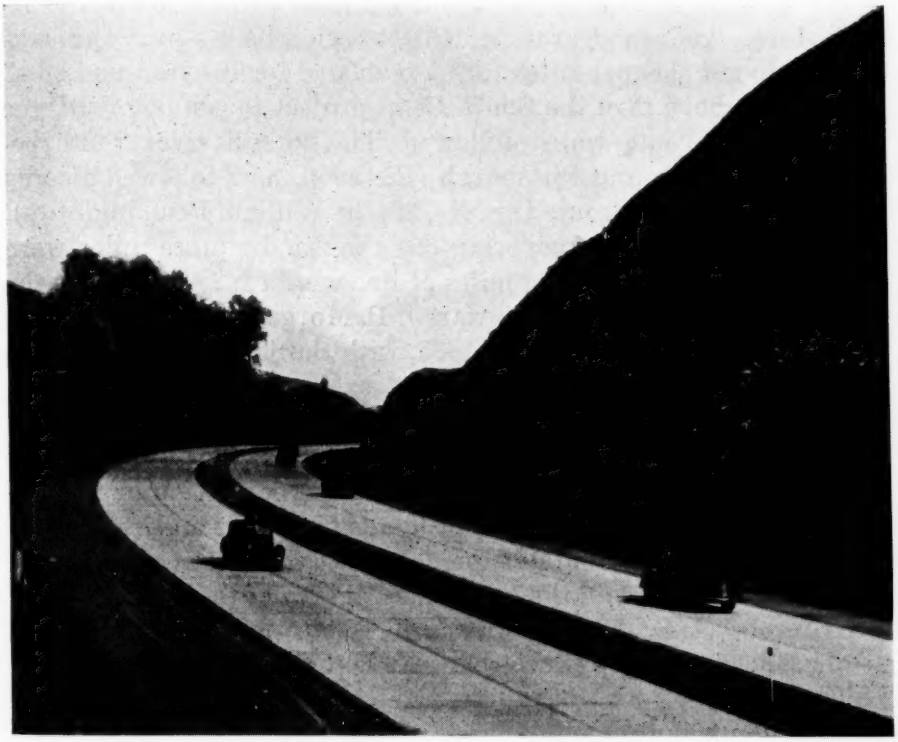

Fig. 2. Here at Clear Ridge Cut many of the features of the Turnpike may be clearly viewed: easy ascending grades, sweeping curves, divided four lanes, and reflector markings for night driving. Photo courtesy Pennsylvania Turnpike Commission.

Pittsburgh, to aid General Braddock in his campaign against the French and Indians on the Ohio river. This venture ended in failure, for at Bedford, half way across, Burd turned back; Braddock had been defeated.

One hundred years before any physical work on the turnpike project was started, in 1837, came the first authorization from the State legislature to survey a southern route for a railroad. Many times the project was picked up and then abandoned. It was in the 'roaring eighties' when the great railroad tycoons were vying

for power, during the period when about one-fifth of our present railroad mileage was built, that the railroad project was actively boomed.

The greatest of all South Penn—as the road was called—ventures began in New York in 1883. At that time the Pennsylvania railroad threatened to enter in competition with the New York Central by building a parallel line up the west shore of the Hudson to get thru the Mohawk pass. Vanderbilt, New York Central head, backed by Andrew Carnegie, Pittsburgh steel king, who was anxious to get cheaper rates to the seaboard for his iron and steel, planned to shove thru the South Penn project to compete with the Pennsylvania route which followed the Juniata river route between Harrisburg and Pittsburgh (the route now followed also by United States motor route U.S. No. 22, the William Penn highway). Ten foot contour maps covering one thousand square miles were prepared, and five thousand miles of line were run. Alarmed by the prospects of a disastrous rate war, J. P. Morgan forced Vanderbilt to sell out to Pennsylvania. In 1885, with the job half finished, the route was abandoned.

Major attempts were made in 1908 and 1914 to revive the project.

The Present Turnpike. As time passed, the perfection of the motor car and motor truck brought demands for better and safer highways. The low-grade route of the old South Penn was seized upon as an ideal way to avoid the grades and curves of the William Penn and Lincoln (U.S. 30) highways which are parallel routes with steep grades and sharp curves between Harrisburg and Pittsburgh.

The Pennsylvania Turnpike stretches 159.6 miles thru the Appalachian mountains linking Harrisburg, the State capital, with Pittsburgh, the great industrial area. Its eastern terminus is Middlesex, Cumberland County, thirteen miles west of Harrisburg; its western is at Irwin, which is fifteen miles east of Pittsburgh.

The Turnpike is a modern four-lane, concrete highway. East and west traffic is separated by a ten foot wide center strip. Width of each traffic lane is twelve feet. The ridges are pierced by seven tunnels totaling 6.7 miles in length. The roadway in the tunnels converges into two lanes of 11.5 feet. The tunnels are 28.5 feet wide, and from roadway to ceiling, 14.33 feet high. Ventilation is far in excess of State regulations and lighting is the last word in modern efficiency. The maximum ascending grades thruout the entire length of the highway do not exceed 3 per cent. Curves

average about one to a mile, and are limited to four degrees with only a couple at six degrees having a radius of 995 feet and permitting maximum sight distance. About two-thirds of the Turnpike mileage, 110 miles, is a straight line. The curves are provided with super-elevation and spiral easement. There are no crossings of any kind. One hundred sixty overpasses and underpasses plus 139 bridges were required. Well spaced ramps of the most modern design give access to the highway. Unanimity of design is maintained thruout the total 160 miles of the project. Plans are laid to connect the route with Philadelphia by means of a similar highway.

The Turnpike eliminates the causes for about 90 per cent of all accidents—no head-on collisions, no sideswiping, no grade crossings or intersections, no striking of pedestrians or stationary objects along the right-of-way. Hazards of snow, ice, and fog are materially lessened. The Turnpike is above established flood levels, thus assuring thru travel in event of disastrous floods.

Financing. Works Progress Administration of the Federal Government surveyed the route, and by legislative approval, the Pennsylvania Turnpike Commission was established, in order to finance, construct, and supervise the route. The superhighway cost roundly $61,100,000. It is financed by a grant of the Public Works Administration of the Federal Government (which grant was based largely on recommendations of the War Department) of $26,100,000 and $35,000,000 in Turnpike revenue bonds purchased by the Reconstruction Finance Corporation of the Federal Government, thus placing no burden on the State funds that were earmarked for improvements and construction work on existing highways. Thru tolls collected the highway will in time pay for itself.

Since the opening of the highway on October 1, 1940, the tolls have been divided according to the type of vehicle and the distance traveled. Trucks pay from $3.00 to $10.00 for a full trip. Passenger cars without trailers pay $1.50 for a full length trip, and $2.25 for a round trip. Rates for partial trips between the ten various interchange stations are based on mileage between the stations.

SUMMARY

Man in his engineering achievement has at last overcome the rough land of the Appalachian barrier. A new adjustment in land use of mountain terrain in Pennsylvania has been achieved, and the old Roman principle of 'straight-line' roads improved by all the techniques of modern engineering has been used. As a military,

commercial, and sightseeing artery the Pennsylvania Turnpike is the last word in highway technique.

The present culture occupying the Pennsylvania section of the Appalachian barrier has met the need of transportation arising out of its development of modern modes of land vehicles.

THE SOCIAL VALUE IN DEVELOPING READJUSTMENT THINKING IN GEOGRAPHY*

GLADYS FAWLEY
Florida State College for Women

Increasingly in geographic literature there is evident the feeling that geography teaching must serve a socially useful purpose. Only a few quotations from recent articles in the JOURNAL OF GEOGRAPHY will be given to support this statement.

George T. Renner said in September, 1939 (p. 250): "Every subject must have something both vital and specific to contribute to education or it will sooner or later be pushed out of the modern school curriculum. . . . At present, geography continues to be in most instances a pleasant generalized descriptive study. . . . Today in America there are in operation a number of powerful forces which promise to remake almost entirely our basic human geography. These have given rise to a whole set of exceedingly important problems, most of which are embedded in such areas of investigation as: community study, urbanism, city planning, regionalism, industrial location, urban-rural migration, selective factors at work in human biology, decadence and blighting of localities, population resettlement, socio-economic planning, and conservation of natural resources. Geography teachers and textbooks have in the main either ignored these problems or regarded them luke warmly; at the same time they have largely occupied themselves with trivialities. It is patent that geography must change considerably if it is to serve any very useful purpose. Should it not do so, it can hardly hope to survive long as an active educational instrument."

Donald Hudson stated in October, 1935 (p. 276): "An appropriate time has come in the history of their science and in affairs of the day for geographers to devote a greater share of their skills to wider public uses. . . . Geography has the opportunity to partici-

* Abstract of a paper presented at the Baton Rouge meeting of the National Council of Geography Teachers, December, 1940.

pate more widely on the frontier of social and economic improvement."

The National Council of Geography Teachers in a formulation of objectives in April, 1937 (p. 154) states: "Geography has a contribution to make that is distinctive and which is essential to an understanding of, and to the solution of many human-welfare problems. This potential contribution has been largely disregarded in the American system of education."

At Florida State College for Women we are attempting to develop in our geography students, most of whom are prospective teachers, a feeling of personal responsibility toward community, state, regional, and national problems. Most people live out their lives within the same general area in which they grew up, often in the same community, or within a few hundred miles of their birthplace. Even in Florida, where 50.6 per cent of the native white and 38.1 per cent of the native Negro population were born in other states, the greater number has come from adjacent southern states. Thus most students who receive training in the critical evaluation and attempted solution of local and regional problems thru the application of geographic generalizations, are gaining practical experience with the same or similar problems which they will meet as responsible adult members of society. The realization by the students that these are not theoretical academic exercises but are real problems to be solved, and that they affect them personally in social, economic or political ways, gives us some of the liveliest and most spirited discussion hours of the school year.

For these local and regional studies we have found the bulletins and reports published by the National Resources Planning Board, the Florida State Planning Board, the Florida Department of Agriculture, the Florida Forest Service, the State Geological Survey, the State Marketing Bureau, and by other public and private organizations, invaluable sources of information.

A consideration of most human welfare problems involves a recognition of the need for some readjustment to existing conditions. Geography has concerned itself primarily with the adjustments that man is making, or has made, to the natural environment; readjustments studied have been chiefly the changes made necessary in correcting maladjustments, or the mis-use of resources in connection with various phases of conservation. The introductory statement of a *Report on Land Use Problems and Conditions in Florida,* published in 1935 by land planning consultants from the National Resources Board in cooperation with

the State Planning Board, calls attention to the broadened scope of land use planning which started as an outgrowth and development of conservation policies and now includes "not only the conservation of physical resources, but human resources as well; not only land, but also the population dependent on the land; not only present conservation but planning for future use."

Students have an opportunity to observe many maladjustments and in some cases are able to see readjustments that have been made. One of the maps in the *Report on Land Use Problems and Conditions in Florida* outlines certain "areas in which readjustments should be made and other land use substituted for arable farming." The flat, sandy portion of Leon County south of Tallahassee is included in this land classification. During field trip observations thru the area, our students are expected to recognize such evidences of maladjustment as: large percentage of idle land, cut-over and burned-over woodland; a very small percentage of land in small, low-value farms with neglected-looking farm homes, poorly built, unpainted, often without screening, and with wooden shutters in place of glass windows; small patches of poor, stunted corn and other crops, suggesting low yields; little improved pasture; unregulated grazing of a few "piney woods" cattle and "razor-back" hogs; winding sand roads leading away from the main pavement; small, poorly-stocked stores in cross-road villages; poorly dressed, listless people; and few schools. Professional land planners add to these facts others not observable in the landscape, data for which can be secured from land planning bulletins; low average incomes, relatively high percentage of families on relief rolls, and of one-room, one-teacher schools; high incidence of malaria, pellagra and hookworm; few stores and relatively low retail sales. Most of the farmers in this area are stranded lumbermen and their families who remained after the timber was exhausted. In some cases the land is not too poor to support the farmer if he has a supplementary income. For these areas the Florida Planning Board suggests that "large scale reforesting operations . . . would afford a splendid means of building and conserving the state's primary resource and at the same time would furnish a means of employment and removal from relief rolls for a considerable part of the population." In other cases the farms are on land too poor to afford an adequate living standard. Removal of some of these families from southern Leon County and adjacent Wakulla County to the resettlement project on the red clay hills east of Tallahassee

was effected several years ago, and students of that period saw the two areas in transition. The areas abandoned by the farmers are being reforested.

The chief use of the term redjustment in connection with the correction of maladjustments, leads to the misconception on the part of some students that a readjustment should be made only when a maladjustment is present. It is important for the future citizen to appreciate that an effective adjustment consists of a series of readjustments made often over a period of years. The establishment of the Everglades sugar industry, described in the Florida Department of Agriculture bulletin "Florida's Sugar Bowl," shows a record of gradual improvement in varieties of cane grown, methods of planting and harvesting that are best suited to the natural environment of the Everglades and proves an excellent example of the fact that a successful adjustment can be more efficient and more profitable thru constant readjustment.

A glance at the introductory section of another Department of Agriculture bulletin, the "Report of Manufacturing in Florida, 1937" suggests that a readjustment to the natural environment of Florida with the aid of scientific research would result in the use of resources that at present are unused, and would result also in new uses for products now being produced. Under the heading, "Future Industrial Possibilities" are listed over twenty-five resources of which better use could be made. Dean Weil of the College of Engineering, and Director of the Engineering Expriment Station of the University of Florida, states in the report: "Engineering research must be used to uncover the abundant wealth about us. . . . Today we sit, unmindful of the possibilities before us. If you knew that a mass of gold was buried in your yard, would you wait until the elements washed off the surface dirt and revealed the deposit, or would you employ men and dig for it? That is our problem today."

It is apparent that readjustments to the natural environment must be made increasingly in response to changing social, economic and political conditions. A quotation from the December 6th issue of the United States News (p. 36) will illustrate this point: "We are starting a vast aerial development which will certainly, like the motor development, bring relocations of population and industry, changes in modes of living. Other influences are shaping up that are decidedly worth watching; the emphasis on improved national diet, and the plans for extensive low cost housing."

Geography teaching can make a vital and specific contribution to the understanding and solution of social and economic problems by means of practical training in the development of deeper and broader readjustment thinking about the specific problems now confronting the local community, the state and the nation. One of the best sources, and a free source of information, available to teachers even in the poorest and most isolated districts, is that quoted from thruout this paper: federal and state government bulletins, and reports published by other public and private organizations, omitting, of course, chamber of commerce literature. Each student of geography can be made to feel that he or she will be personally responsible in small part for the successful working out of national and state readjustments. To work effectively toward the solution of land use problems, it is essential that potential land use planners possess first, a well-formulated body of generalizations based on geographic knowledge and experience that can be applied in the working out of possible solutions in these new situations, and second, an active, observant, critical, geographic point of view that will recognize the importance of making successful adjustments to the natural environment, thru repeated readjustments if necessary, of correcting maladjustment, and of deliberately seeking out possible readjustments that might mean social betterment.

The development of readjustment thinking in geography, together with an understanding of its social value, is primarily the task of the elementary school teacher, since most citizens receive their only geographic training in the elementary school. It is also the obligation of the high school teacher to re-emphasize the readjustment thinking and point of view for the few students who receive their last geographic training in the high school. College teachers have a double obligation: that of training future citizens and that of training future citizens who will also be teachers. In short, it is the task of all of us to see that geography teaching makes a vital and specific contribution to education.

1941-42 MEETING OF THE NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

The next annual meeting of the National Council of Geography Teachers will be held at the Barbizon-Plaza Hotel, 101 West 58th Street, New York City, December 31 to January 2. In a recent letter to Secretary Barton, the manager of the hotel made the following statement of accommodations and rates.

"We are offering an excellent selection of single rooms with private bath at $3.00 per day, an excellent selection of double rooms with twin beds and private bath at $6.00 per day, and oversized rooms with three beds and private bath at $7.00 per day. All rooms selected will have preferred locations, and the rates also include our delicious Continental Breakfast that is delivered to each guest's room every morning."

ALICE FOSTER, *President*

AN ACTIVE STATE COUNCIL OF GEOGRAPHY TEACHERS

The Florida State Council of Geography Teachers is having a highly successful year under the chairmanship of Miss Mary Lenore Bostick (Caroline Brenard School, Tallahassee). Thru the efforts of this group it seems likely that the high schools of the state will have more and better geography in the near future. Geography now appears on the list of elective subjects for Florida high schools and is taught in many schools. The state council has succeeded in having geography requirements added to the certification list and is pushing forward with other plans to improve the status and quality of geography teaching.

Recognizing the vigor of the Florida Council of Geography Teachers, the State Department of Education has appointed Miss Bostick and Mrs. Annice Davis Elkins (Tarpon Springs) members of a research committee to study such audio-visual aids as globes, maps, charts, pictures, and sound films for the purpose of making recommendations regarding the best available aids for classroom use. The findings of the committee are to be published as a bulletin. In connection with their work on this committee, Miss Bostick and Mrs. Elkins will be at the University of Florida for six weeks this coming summer, assisting in the organization of a "workshop."

ALICE FOSTER, *President*
National Council of Geography Teachers.

EDITORIAL NOTES AND NEWS

At the close of the World War thousands of people were shifted from their old homes to new ones, largely on the basis of nationality origin or language. A similar forced migration is now in progress. The territorial modifications which have taken place since the beginning of the war have resulted in many transfers of population. Germany has transferred to the Reich the German minorities in the Baltic States and in the former Polish and Rumanian territories incorporated in the U.S.S.R., as well as the Germans of the southern Bukovina and northern Dobrudja (both remained attached to Rumania) and those from the Italian Southern Tirol. The repatriated persons were settled principally in the eastern territories newly united to Germany and a smaller number of them in Lorraine. A transfer in the opposite direction resulted from the German occupation of the Polish territories; the White Russians and the Ukranians living there being sent to the U.S.S.R. In the same way when Bessarabia became Soviet, the population of Bessarabian origin living in Rumania was recalled. The incorporation of Alsace and Lorraine with Germany caused the repatriation to France of a great number of Lorrainese. Practically all the inhabitants of the Finnish territories ceded to the Soviet Union emigrated to Finland. As a result of the cession to Bulgaria of southern Dobrudja, an exchange of population between Rumania and Bulgaria took place.

1. Territories inhabited until 1939-41 by German minorities who have been repatriated to Germany; Transferred population: 2. Germans; 3. White Russians, Ukrainians, and Bessarabians; 4. Lorrainese; 5. Rumanians; 6. Bulgarians; 7. Finns.

On the map the number of repatriated persons is given in thousands. The transfers between Germany and the General Government of Poland, the figures for which can only be estimated with considerable difficulty, are not given.

ROBERT M. BROWN, West Barrington, Rhode Island, acting Chairman of the Educational Relations Committee of the National Council of Geography Teachers, has prepared the following tentative program for the sectional meetings sponsored by the National Council of Geography Teachers, to be held in conjunction with the annual meeting of the National Education Association held this summer in Boston:

Monday afternoon, June 30

Joint program with the Department of Secondary Teachers as sponsors.

Tuesday afternoon, July 1

Joint session of the National Council of Geography Teachers and the National Council for the Social Studies.

Wednesday afternoon, July 2

The Educational Relations Committee of the National Council of Geography Teachers will present a program.

GUILBERT GRAHAM, formerly instructor of geography in the Zanesville High School, is now Assistant Instructor in Meteorology with the Air Corps at Randolph Field, Texas.

The Third General Assembly of the Pan American Institute of Geography and History was scheduled to convene in Lima, Peru, on March 30. Dr. John C. Merriam of the California Institute of Technology, Pasadena, is the President of the Pan American Institute.

The New England Geographical Conference was held May 2-3, in the auditorium of the State Teachers College, Worcester, Massachusetts. Included on the program are topics dealing with visual aids in elementary geography, western hemisphere solidarity, and National Defense; book and map exhibits; and a hanquet. Dr. J. Russell Smith will talk on "How Long Will America Last?" and Dr. Ellsworth Huntington will deliver the Presidential address.

Do sheep grazing on sandy pastures in cold windy regions produce more and better quality of wool and need less supplementary feed if they wear a cotton coat during winter? A few tests of this nature were carried on last year, and more will be tried the coming year. In the meantime, cotton growers wonder if this may be one way of relieving them of their surplus stocks.

Yugoslavia leads Europe in copper production, if that of U.S.S.R. is excluded. Practically all of it comes from the French-owned deposits at Bor, located in the Morava-Danube sector. A record production of 63,000 metric tons is reported mined in 1939, with smelter production at 41,658 metric tons. An electrolytic refinery was opened in July, 1938, with a monthly production of a thousand tons. This is a very material addition to Germany's needs. Germany's domestic ores were for years averaging annually about 30,000 metric tons, while its annual consumption took about 237,000 tons in 1934-38. Yugoslavia's smelter production of lead in 1939 is reported at 10,624 metric tons. Mining of a variety of other minerals, including chromite, zinc, coal and lignite, and iron ore, and evidence of rich nickel deposits indicate that Yugoslavia is a richly mineralized area.

Every year a High School Teachers Conference is held at the University of Illinois with general and sectional meetings extending over a three-day period. One day's sectional meeting is devoted to geography. About a hundred teachers were in attendance at the last sectional meeting, with Margaret Means of Bloomington High School, chairman. Conservation was the theme of one section, developed by Walter W. John, Milwaukee, and Helen M. Strong, Washington, D.C. Geographical interpretation of communities was the topic at the second section, led by John H. Kemler, Chicago; Ada Flemington, Winnetka; H. D. McBain, Robinson; Neva McDavitt, Normal; and P. H. Kinsel, Edwardsville. Tea was served by the University of Illinois Geography Club.

According to the United States Bureau of Mines, magnesium production in 1940 in the United States totaled 12,500,000 pounds, an increase of 87 per cent over the peak production in 1939. The magnesium does not occur as a free metal in nature. Its production has thus far been centered in Midland, Michigan, where it is processed from brine derived from a prehistoric sea; and from Freeport, Texas, where it is extracted from sea water. The weight of magnesium is only two-thirds that of aluminum, making it the lightest structural metal thus far obtained for extensive commercial use. The metal's greatest use is in alloys for a variety of aircraft parts. It is also of great importance in incendiary bombs. As a component part of a variety of compounds it is the third most plentiful metal in the earth's crust. Several of these compounds have a wide range of uses, including the making of cement, stucco, plaster boards, furnace linings, and fertilizers.

According to recent releases from the United States Bureau of Mines, Canada last year led all countries in the production of asbestos, nickel, radium, and the platimum group of metals; was third in zinc and silver; and fourth in gold, copper and lead.

The largest relief map of the United States was recently completed at Babson Institute, Babson Park, Massachusetts. The scale is four miles to the inch, with the vertical scale exaggerated six times. Visitors are permitted on the catwalk encircling the dome that houses the map. Added to the striking pattern of mountains, plains and rivers are the major irrigation projects and navigation canals.

GEOGRAPHICAL PUBLICATIONS

Lester E. Klimm, Otis P. Starkey, and Norman F. Hall. **Introductory Economic Geography.** 501 pp. Illustrated. Harcourt, Brace and Company, New York. 1940. $4.25

Altho the basic organization is the same as that of the first edition, important changes in text and illustrative material are to be noted on every page of the second edition. More attention is given to the political aspects of the regional studies. Climate is more closely tied to soils, topography and vegetation. Weather analysis includes the Polar Front Theory and air-mass analysis. The chapters are so written that various groupings of chapters other than the sequence used may be made to emphasize a number of different course organizations; such as regional studies, delimitations based on climates, and emphasis on commodities and industries. Arrangement of textual and illustrative material is close enough to facilitate ease in the use of both.

J. Harlan Bretz. **Earth Sciences, Meteorology, Oceanography, and Geology.** 260 pp. Illustrated. John Wiley and Sons, Inc., New York, 1940.

One volume of a series, entitled "The Sciences, A Survey Course for Colleges," edited by Gerald Wendt. The basic philosophy of the series is to present a broad understanding of science so that in the end the student is better prepared for life, has a foundation for further study, and is appreciative of scientific approaches to an understanding of problems. In this volume, the author analyzes the solid, liquid and gaseous forms of the earth and the results of the reactions to each resulting where these forms contact each other, together with the bombardments of radiant energy.